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ZOOGOER



ZOOGOER

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Cover Photos

The National Zoo's male leopard "Sammy" is one of several cat species that will benefit from the Zoo's reproductive research on endangered animals (story, page 4). Back cover: "Jayathu," the Zoo's new 19-month-old Asian elephant gets an official welcome at the White House (story, page 15). Cover photos by Jessie Cohen, NZP Graphics and Exhibits.

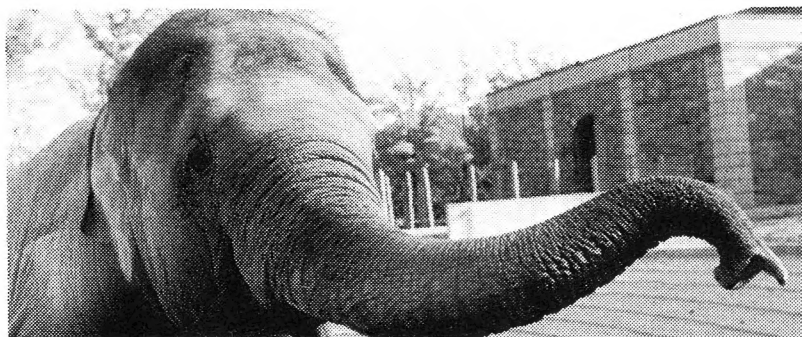
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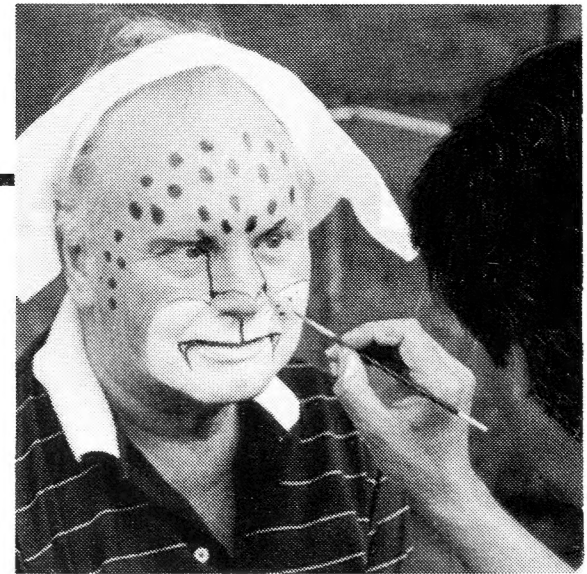
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Early Days at the Zoo: Sunshine, Welcomes, Panda Furniture and Face-painting



Cohen, N.Z.P. Graphics and Exhibits

Dear FONZ Member,

My first few weeks as the Zoo Director have been really memorable. The staff, the weather and a series of special events have combined to make me feel at home, welcome and very proud to be part of the National Zoo. I have been overwhelmed with new experiences and made aware of the wide range of my duties and responsibilities.

The sun broke through shortly after my arrival, just as I was becoming convinced I had left it behind forever, in Panama. The warmth of the sun was as wonderful as the warmth of the welcome I received from all the Zoo family; both helped to overcome the sadness of leaving 18 years of my life behind me, in Panama, at the Smithsonian Tropical Research Institute, where I was Deputy Director.

The week before I joined the Zoo staff I was able to work with FONZ volunteers building furniture in the panda yards. This was a truly remarkable experience. I never expected to see so many people working together in such an harmonious way. The organization was superb, the dedication was deeply moving and the finished product clearly resulted from a "labor of love." Congratulations FONZ.

The next week was ZooFari. That was an evening to remember. It was meticulously planned, immaculately organized and a real delight. I was particularly fond of the African Dancers, the Elephant Show and the food . . . not necessarily in that order.

After ZooFari came an invitation to visit Brookfield Zoo, Chicago, for the opening of their Tropic World: South America. This was a chance to see how well they had reproduced the atmosphere of the tropical forests I know so well. The effect is marvelous, the entire exhibit is as good as human intelligence, skill and devotion can contrive. Congratulations to George Rabb and his staff! Every enthusiastic zoogoer should see the whole exhibit. Chicago is also the home of the Lincoln Park Zoo, with many exciting and beautiful exhibits, the Shedd Aquarium (first-class!) and the Field Museum of Natural History. Three cheers for Chicago and thanks to all the zoofolk who gave me such a warm and hospitable welcome there.

Finally there was Summerfest. Summer nights with zest and entertainment, summer nights that were memorable. I particularly remember the jazz concerts. They seemed so appropriate in the setting of our park on a sunny night. I also had my face painted as a leopard. This was fun until I decided to drive home without removing the paint, so that I could be photographed there for my mother's benefit. I'm afraid that the effect on passing drivers along Connecticut Avenue was less than tranquilizing! Ah well, if the rest of the summer is as exciting as these first few weeks, I'm not certain I can stand the pace but it sure will be fun.

Sincerely,

Michael H. Robinson, Director
National Zoological Park

Giving Endangered Species A Second Chance

Dr. David E. Wildt

Artificial insemination, sperm banks and embryo transfer are routinely used to reproduce farm animals. The broader application of these techniques could give endangered species a second chance for survival.

Artificial breeding could increase the breeding potential of genetically superior animals and expand gene pools without the health risks or expense of transporting highly endangered animals. It would allow the use of animals unable to mate naturally because of physical or behavioral handicaps. Also, if sperm cells and embryos can be effectively and safely freeze-stored, distinct genetic lines would be available for many years and the existence of certain species could be ensured for future generations.

Despite the zoological community's strong interest in artificial breeding, research programs have been slow to develop, in part because of lack of financial support and trained personnel. Most reproductive research in zoos has focused on behavior—studying courtship and breeding patterns, then adjusting management practices in hope of increasing reproductive activity.

Unfortunately, not all problems can be solved using this approach. Animals often appear to be sexually incompatible and there is growing evidence that infertility is

more common in captive species than once thought. Solving these problems requires studying an animal's physiology as well as its behavior. This type of research on zoo species is not simple and only a few major zoos worldwide have even attempted such programs. The Cincinnati, San Diego and Bronx zoos have all done some work in this area.

The National Zoo's interest was fostered in the mid-1970s by Dr. Mitchell Bush, head of the Zoo's Department of Animal Health, and myself, then on the faculty of Baylor College of Medicine in Houston. We initially met with a common interest in using the technique of laparoscopy to observe reproductive organs in zoo species. The laparoscope is a narrow-diameter fiberoptic telescope that can be inserted through a small incision in an animal's abdominal wall to directly view the ovary.

In 1979 I accepted a research position with the National Institutes of Health (NIH) in Bethesda, Md. My proximity to the Zoo permitted greater collaboration with Bush and his staff, although our research efforts remained an avocation.

The potential of our research in wildlife reproductive physiology was realized as a result of a 1980 FONZ-supported field study to the De Wildt Cheetah Breeding and Research Center. The facility is operated in part by the National Zoological Park of South Africa.

Dr. Bush and I were excited about collaborating with the De Wildt Center. The Center had all the necessary ingredients for fruitful research—over 50 available cheetahs, outstanding facilities and a staff eager to cooperate.

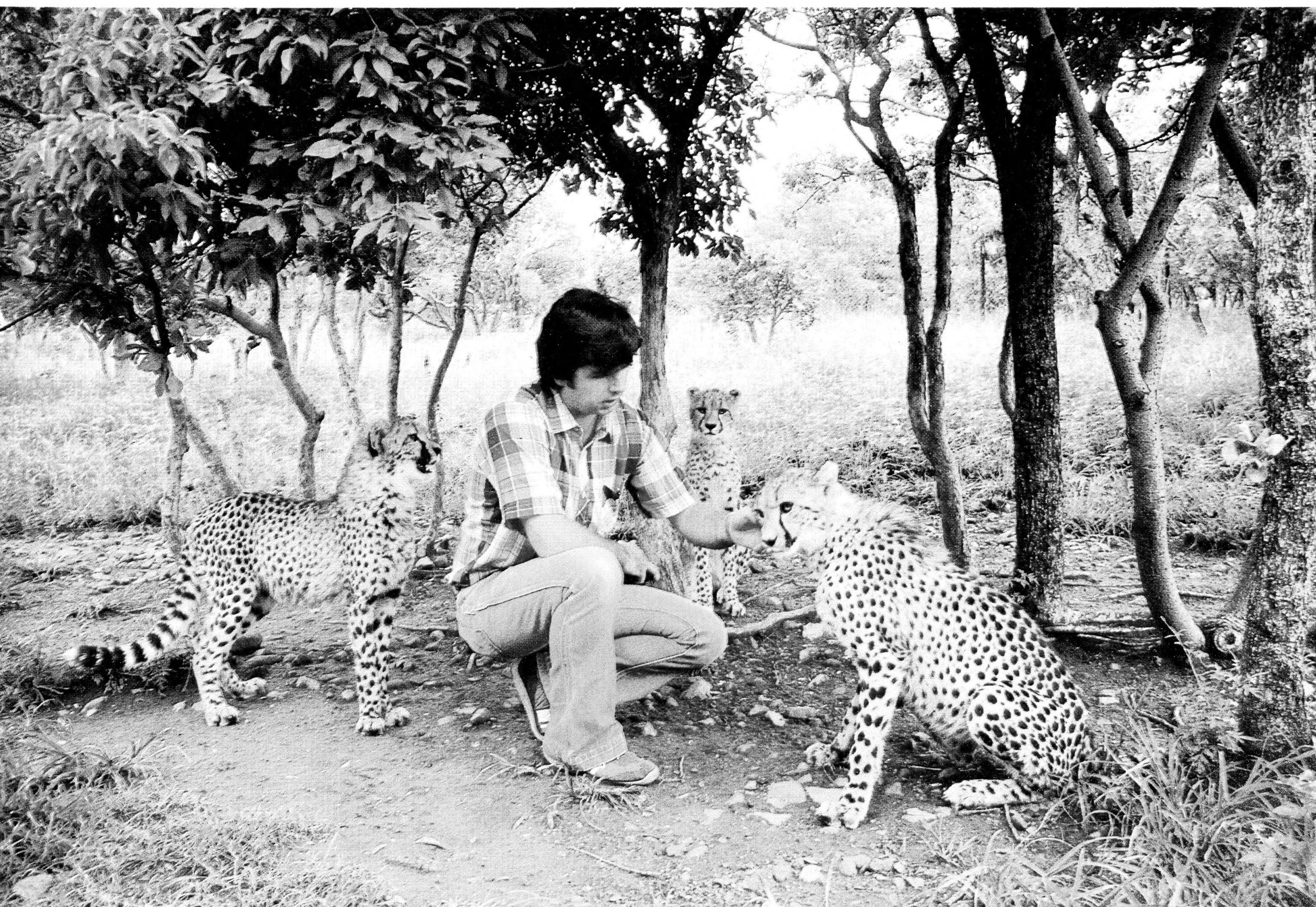
One of our studies involved semen evaluation from the Center's large population of breeder males. We were amazed to find that the ejaculates of the cheetah contained extremely high numbers of abnormal sperm cells—a characteristic that often indicates infertility in farm animals.

The cause of this abnormality in the cheetahs was not immediately known. However, we had been working with Dr. Stephen O'Brien, a molecular geneticist at the National Cancer Institute (NCI). One of O'Brien's interests was measuring the degree of genetic variation in animal populations by the analysis of red blood cells. Anticipating that the cheetah may lack genetic variation, we sent red blood cells from the De Wildt cheetahs to NCI.

O'Brien's analyses revealed the astounding finding that all the cheetahs at the Center were genetically identical! This was especially surprising because the

Above right: After reversing anesthesia using a chemical antagonist, Bush assists a male giraffe in Kruger Park to return to the wild. Right: Wildt relaxes with hand-raised cheetahs at the De Wildt Cheetah Research Center.

David Wildt is a research physiologist with the National Zoo's Department of Animal Health.



Evidently during its evolution—possibly as a result of a severe population bottleneck—the South African cheetah has become similar to an inbred species.

Center's animals come from diverse regions of South Africa.

Evidently during its evolution—possibly as a result of a severe population bottleneck—the South African cheetah has become similar to an inbred species. Inbreeding, which results after many generations of matings between closely related individuals, is known to adversely affect health and reproduction in farm animals.

Further studies at De Wildt revealed that the male cheetahs produced very low blood concentrations of testosterone, the major male sex hormone. We are not yet sure what effect the low testosterone levels have on cheetah reproduction, but we know that cheetahs breed poorly in captivity, have a high incidence of infant mortality and are prone to certain infectious viruses. There is a strong possibility that the lack of genetic variation in the cheetahs has had serious effect on testes function.

We are planning to examine these reproductive traits in East African cheetahs, a distinct subspecies from the race studied in Southern Africa, to determine if they also lack genetic variation.

Perhaps the real value of the De Wildt venture was in demonstrating that "hands-on" physiological research can be performed successfully and safely on a wild, endangered species. Realizing the possibilities, we increased our efforts first by arranging brief collaborative studies with other U.S. and Canadian zoos and then by recruiting students into our program.

In 1982, FONZ supported a

second field study, this time at the world-famous Kruger National Park in Southern Africa. We used this six week field study not only for collecting physiological data, but also as a training opportunity for one of our FONZ-supported interns, JoGayle Howard. The study involved immobilization and data collection from elephants, giraffes, rhinoceroses, hippopotamuses, zebras, wildebeest and lions.

We believe that long-term opportunities and valuable contributions can be made by detailed studies of the reproductive physiology of wildlife species. Both FONZ-supported field studies were highly successful and several papers on the studies were published in the scientific press. As a result, the research program was

formalized within the National Zoo's Department of Animal Health in June 1983.

Our research strategies in the program were formulated with three objectives: 1) increase basic reproductive knowledge of previously unstudied species, 2) evaluate the fertility of animals with suspected reproductive problems and 3) eventually propagate selected species using artificial breeding methods.

Our priority is to learn more about unstudied species because it is not routinely possible to breed animals artificially without first studying basic physiology. Reproductive cycle length, time of ovulation and number of sperm required to achieve conception are all important factors in artificial breeding.

We are fortunate to have the cooperation of many organizations in the U.S., Canada and abroad, including most major U.S. zoos. Some, like the Henry Doorly Zoo in Omaha, Neb., are visited annually to collect raw data such as semen and blood samples. The samples are then transferred back to the National Zoo for study.

The program also takes advantage of the many experts and facilities in the Washington area. A close association with O'Brien's laboratories at NCI permits continuing studies of the influence of genetics on reproduction. The NIH Animal Center in Poolesville, Md., offers valuable data from a variety of domestic animals, which serve as models for endangered species. The semen collection and evaluation procedures



Goodrowe (right) prepares frozen-thawed embryos for evaluation while Hall retrieves a vial of embryos from a liquid nitrogen bath.

NZP Animal Programs

used in our cheetah studies, for example, were first developed in domestic cats. The NIH-National Zoo relationship is mutually beneficial. Our efforts at the NIH Animal Center include evaluating fertility and organizing artificial breeding of rare animal models used in research of human disease.

The Uniformed Services University of the Health Sciences in Bethesda is another major collaborator. Its Department of Physiology provides academic training to graduate students who are researching reproductive physiology at the Zoo. Dr. Prabir Chakraborty, from the University's Department of Obstetrics and Gynecology, is an expert in hormone interaction and actively participates in many of our projects.

Our projects investigate reproductive factors in both sexes of several species. Many of these studies emphasize female reproductive anatomy, hormone function and drug treatments to stimulate ovulation. There is a serious lack of information on the reproductive anatomy of most zoo species. This information is critical in identifying reproductive status and determining sites for semen deposit or embryo transfer.

Laparoscopy has been particularly useful in these studies. Using it to examine 10 barren female gorillas in North American zoos, we found that all 10 were reproductively sound. Past semen evaluations have suggested that at least a portion of the infertility in this species can be attributed to the male. Because of the high incidence of "normality" among females examined by laparoscopy, it appears that more intense research efforts should be directed toward male gorillas.

We measure hormone levels in the female's blood using immunological techniques to help define her reproductive cycle, determine



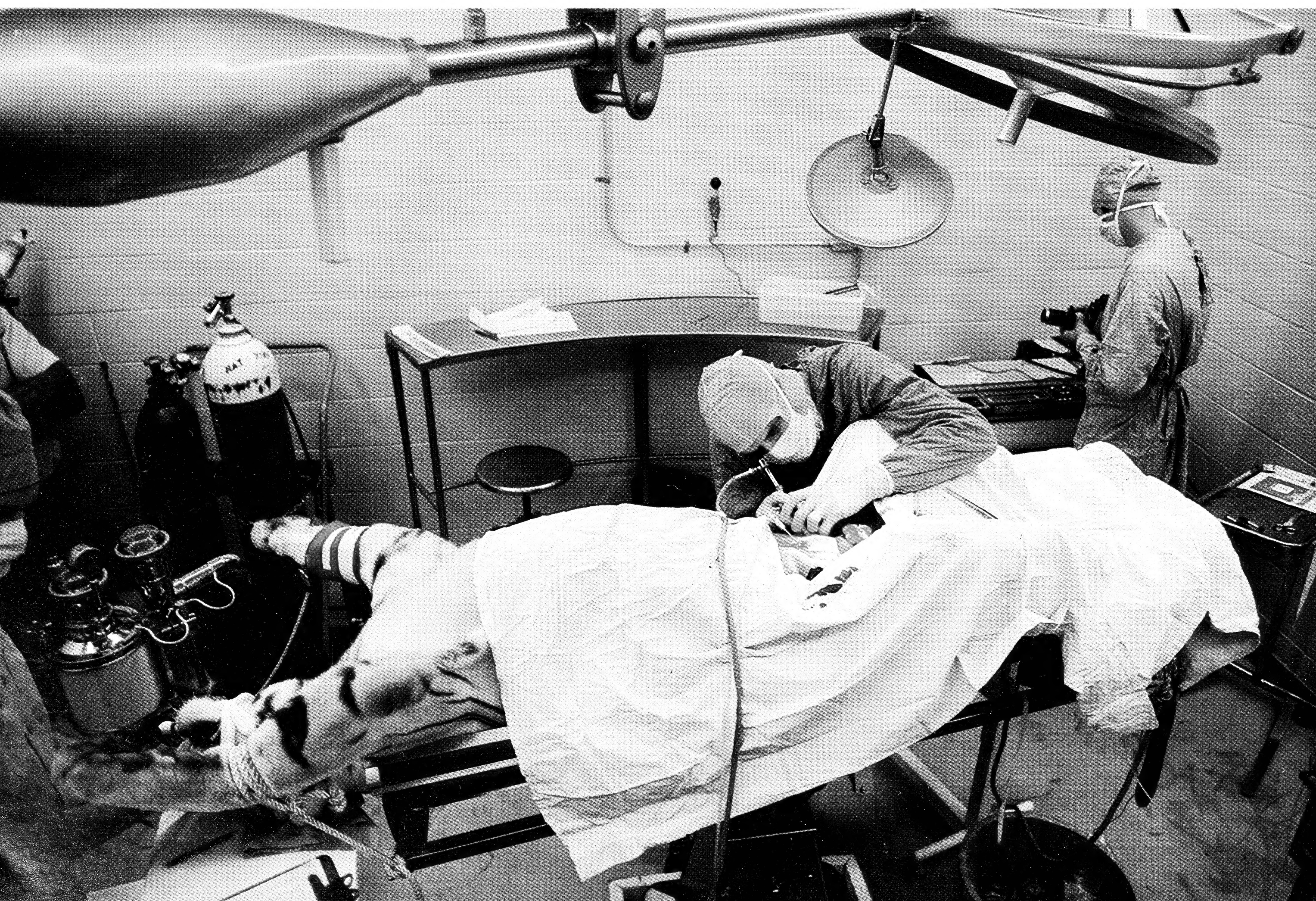
NZP Animal Programs

Schmidt and Wildt examine mice born from frozen-thawed embryos. The embryo freezing unit is in the background.



Jessie Cohen, NZP Graphics and Exhibits

Howard evaluates a semen sample. Zoo researchers have already developed recommendations for banking sperm from several endangered species.



what is normal for a species, diagnose pregnancy or even assist in overcoming infertility.

Hormones are valuable because they can be injected and used to stimulate ovulation, thereby increasing chances for successful artificial insemination. This area requires considerable research, however we have had great success in stimulating ovulation among exotic cats, particularly the cheetah.

We also measure blood hormones in both sexes to help evaluate the stress effects of manipulative procedures. These studies assist the Zoo's clinical staff in determining the best anesthetics to use during reproductive work or when an animal must be immobilized for health reasons.

Successes with embryo freezing and transfer in cattle have spurred considerable interest in these techniques for zoo species. Because hormone therapy is used simultaneously, embryo transfer's major advantage is that a larger than normal number of embryos can be collected from one genetically outstanding female.

Each embryo can be either frozen and later thawed or fresh transferred to the uterus of a surrogate female. The donor can then be treated again and more embryos recovered, thus increasing greatly the number of offspring produced per female.

Our strategy is to apply this sophisticated technology first in domestic animals, thereby developing every optimal technique necessary for eventual success in rare species. We began our studies

The zoological community has long discussed the importance of an endangered species sperm bank.

using mice, because of their elaborate background in embryo physiology and their value to biomedical research. These investigations are performed in collaboration with the Veterinary Resources Branch of NIH, which is responsible for maintaining genetic resources of animal models for human disease. This study, which is primarily conducted by graduate student Patricia Schmidt, has produced over 25 litters of live mouse offspring from frozen-thawed embryos. Between 50 and 80 percent of all mouse embryos survived the freezing process.

The study's methods are now being applied by FONZ-supported students to other domestic species with the hope that success will permit expanding the program to zoo species. Karen Goodrowe is working on embryo transfer in domestic cats with the hope of applying this knowledge to exotic endangered felines such as the leopard and cheetah. Mitchell Schiewe, using novel laparoscopic procedures for artificial insemination and embryo transfer, has produced several successful pregnancies in domestic sheep.

Male animals are also receiving considerable research attention. Semen can be collected from most zoo species during anesthesia using electroejaculation. We have collected semen successfully from over 80 non-domestic species using this method. JoGayle Howard and Laura Hall, another FONZ-supported student, are determining the importance of various semen factors, such as the abnormal sperm cells found in the

cheetah, on fertility of selected males.

The research with male animals also emphasizes finding the best methods for handling fresh semen and preserving frozen sperm cells. The zoological community has long discussed the importance of an endangered species sperm bank. However, a prerequisite to such a program is extensive basic research on various techniques for freezing spermatozoa. We have already developed recommendations for banking sperm from such rare species as the blesbok, Dorcas gazelle, onager, Pere David's deer, Eld's deer and African elephant.

Studying the reproductive physiology of wildlife species is a responsibility of zoos dedicated to preserving rare species. The sophistication of our technology and the large number of species needing study require us to lay our groundwork carefully. In the cattle industry, the use of artificial insemination became routine only after decades of research by hundreds of scientists with unlimited financial support and animal availability. While the zoo world does not have these vast resources, FONZ has been invaluable by helping to initiate and support the National Zoo's pioneering efforts.

We know our initial advances in producing offspring from rare species will be modest; our successes will be more directly related to understanding basic reproductive relationships within species. Only then can artificial breeding be considered a viable way to help preserve endangered species. □

Above left: The first lambs born at NZP from embryo transfer are proudly displayed by (left to right) Leonard Stuart of NIH, Schiewe and Wildt. Left: Bush and Wildt perform a laparoscopic examination of a white tiger.

Gentle Giants

Kathy Wallace

Alright girls, let's go! Move it, move it!" At 7:30 a.m., the exercise begins with a brisk run, then stretching, lying down, precision balance work and lifting weights. It ends with a light, nutritious breakfast and, on some days, a shower and bubblebath scrub.

Is this an exclusive health spa? Women's military camp?

No. It's the National Zoo's Elephant House, where the elephants go through several daily workouts under a keeper's supervision. The workouts help keep the animals healthy, stimulate their minds and strengthen the bond between them and their keepers.

Although humans have long trained elephants to work and perform, they are not domesticated animals like horses or cattle, who have been selectively bred for generations to remove many wild traits. Most elephants in zoos and circuses today were captured in the wild as youngsters and will always react to some extent as their wild relatives do.

The tenuous human-elephant association began thousands of years ago in Africa and Southeast Asia. Through trial and error, a workable but unpredictable system was devised to control the large animals and use them in heavy work. These early elephant han-

dlers developed methods that even today are widely employed.

Circuses adapted much of this tradition, refining and expanding certain elements to suit the more artificial circus environment.

Ironically, the circus lifestyle serves as a relatively adequate substitute for certain natural elephant behavior patterns. For example, without a herd leader an elephant feels insecure and tends to panic under stress. But circus elephants accept their trainer as a leader and regular schedules of work, rest and feeding give them additional stability.

Boredom is another problem for captive elephants. In the wild they spend about 70 percent of each day foraging for food; in captivity, where food is provided, elephants need a substitute activity—such as performances and training sessions.

In addition, captive elephants must cooperate with humans for regular treatment of their feet, teeth and skin, since natural controls are not available. Circus training permits basic health care without hazard to the elephant or its keeper.

While zoos have traditionally

Milton Tiernoy



Shanthi plays with her "Teddy tire."

Kathy Wallace is a keeper in the National Zoo's Elephant House.

disapproved of circus training methods and general treatment of animals, many zoos are now realizing the value of adapting some circus training practices. Zoos hesitate to have elephants "perform" as they do in circuses, but some circus "tricks" are excellent demonstrations of certain behaviors or abilities of the elephant.

At the National Zoo, we are testing and expanding a public demonstration of the elephant's diverse abilities and explanation of its status in today's world. These daily demonstrations benefit the animals and also help to educate the public about the problem of dwindling elephant populations in the wild.

Realizing that people will best remember the message of a demonstration that holds their interest, we have recently added some new behaviors that are entertaining as well as educational.

Most people have basic misconceptions about elephants. The ones in the wild are seen as fearsome beasts, the terrors of savannah and forest; those in circuses and zoos are assumed to be tame and friendly. Neither notion even approaches the truth about elephants.

An intelligent, extremely social and gentle animal, the elephant occupies an enviable niche in the animal kingdom. As the largest land animal, the elephant's only natural enemies are large predators and humans. The predators are a danger only to young elephants; human occupation of ancient grazing areas threatens elephants of all ages with starvation. Also, people have killed many adults for ivory or trophies.

The elephant's evolved assets of size and specialized feeding habits have allowed complex develop-

Milton Tierney



ment of its brain and social structure. Anthropomorphism, or the unscientific tendency to attribute human standards of emotion and behavior to animals, is especially hard to avoid when describing the nature of the elephant. They have been documented to use tools inventively and to display altruism toward the herd and its individual members. Aware of their size and power, they are especially careful of their young and other small creatures.

In captive situations, elephants seem to have a sense of right and wrong. A harsh, quick punishment that is warranted is accepted, whereas unfairness will usually provoke an attack. Praise and affection are equally important to the elephant, and the right balance of both will result in a mutually rewarding and incredibly strong bond between animal and keeper. As one of their keepers, I find it particularly difficult to avoid anthropomorphism in describing them—with no regrets!

The National Zoo's three adult elephants—"the girls" as the keepers call them—have distinctly

Ambika strikes what keepers call "her Cleopatra pose." Overleaf: Keeper Kathy Wallace leads Ambika and Shanthi in a daily exercise session. (Overleaf photo by Jessie Cohen, NZP Graphics and Exhibits.)

individual characteristics, the products of inherited traits, early life in the wild and adjustments to zoo living.

Nancy, our 30-year-old African elephant is a beautiful example of her species. Like most African elephants, she is prone to nervous energy and occasional rebelliousness that can turn into hysteria. But she is better natured and more manageable than most Africans her age and size in this country.

Nancy has a very confident attitude about her place here and her relationship with each keeper. In the wild, she would most likely be the matriarch or leader of a herd. Unfortunately, in the wild Nancy would probably not have reached her present age, for she possesses a beautiful set of tusks that would make her a prime target for ivory poachers.





At the Zoo, Nancy lives a solitary life, since her domineering attitude proved hazardous to the health of a male who was her companion for several years. Some adult elephants do not accept a newcomer because they are set in their territory and way of life. If a fight should break out, keepers would be unable to control it and the results would be serious, maybe fatal.

The keepers try to provide companionship for Nancy and prevent

boredom through training and daily routines. She loves to take a swim in her pool in the summer, but usually waits for keepers to come out to watch her antics, toss tires for her and amuse her with hose-spray games.

Although Nancy seems to have favorites among her keepers, she usually complies with all their commands. She is smart enough to realize that it's easier to obey than to refuse and begin a drawn out battle of wills. But she knows she

cannot be physically forced to do something, and through occasional stubbornness she reminds us that we are not totally in charge. We have learned to recognize her warning signs; we don't push her beyond her limits of patience.

Elephant keepers in some zoos and circuses have been injured, even killed, because they failed to recognize the point at which they cross the boundary of established roles. At that point, the elephant reverts to its basic instinct for self-preservation and will defend itself.

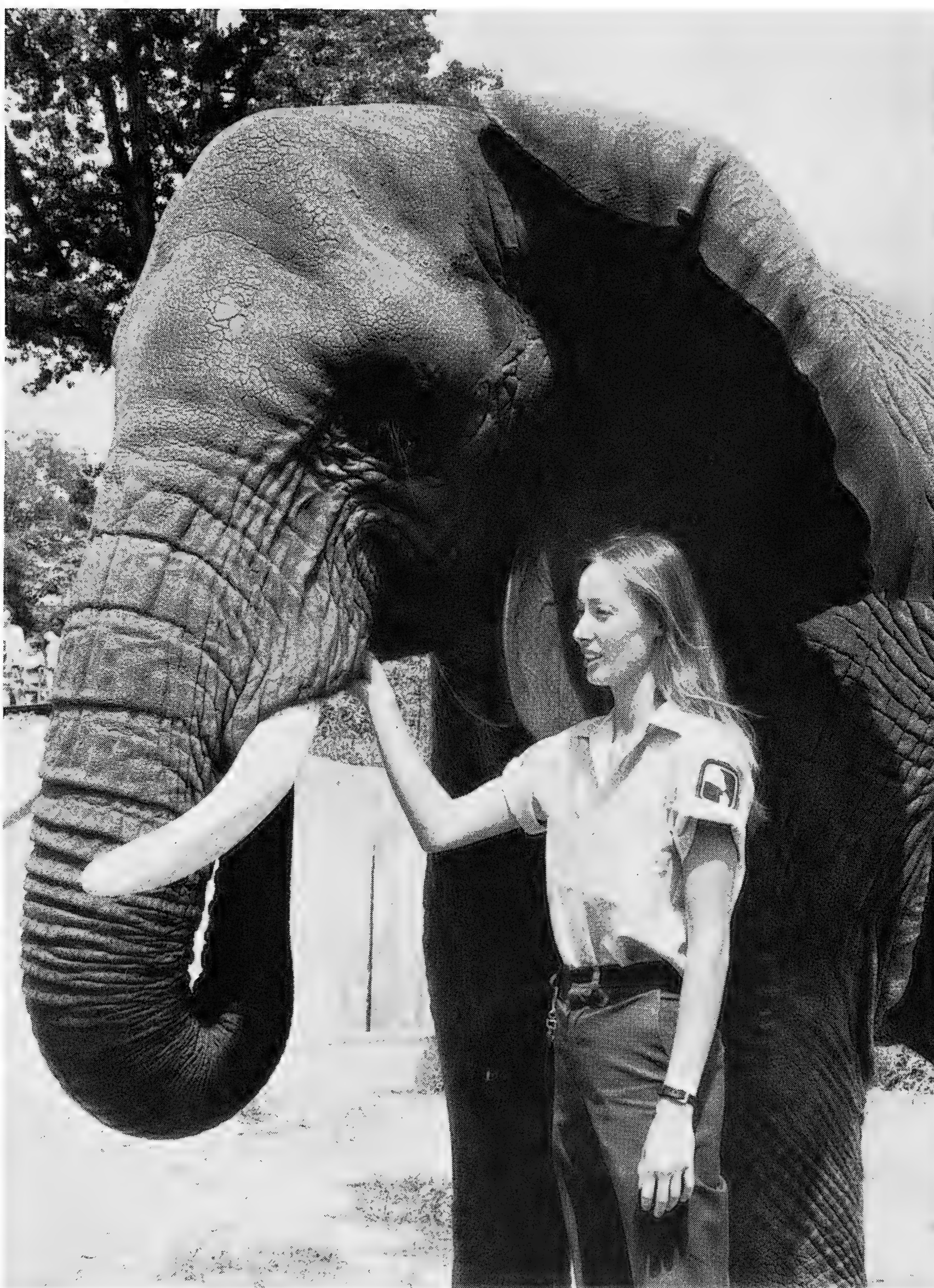
We keepers trust Nancy not to hurt us intentionally. She is very careful to avoid bumping into us, even if we get in her way. She is basically a peaceful, genuinely good natured animal who is so aware of her size and strength that she tries to avoid situations where she will be forced to defend herself, such as teasing from the public or strangers coming too close without proper introduction.

Although Nancy can be retaliatory in response to certain individuals, she seems to understand that the handicapped are to be treated with extra patience and gentleness. We have taken blind children up to her so they can "see" an elephant by touch. Normally always in motion or inquisitive and pushy, Nancy will stand motionless when a blind person touches her.

If Nancy is the Imperial Grand Dame of the Elephant House, Ambika is a Greta Garbo who basically "wants to be alone." Shanthi is a Shirley Temple, ready to experience all life has to offer.

Ambika and Shanthi, our two Asian elephants, illustrate some of the complexities of elephant temperament and social structure. Their status with each other has been changing over time, but they both look to the keepers to set rules and maintain order.

Ambika and Shanthi are almost



Jessie Cohen, NZP Graphics and Exhibits

Nancy accepts a treat from Wallace.

opposites in temperament, learning ability, past experience, development and ways of interacting with keepers. Ambika is 36 and comes from India; Shanthi is eight and comes from Sri Lanka.

Ambika was caught in the wild at 5 or 6 years old and worked in a training camp before she came to the Zoo at the age of 13. We don't know how she was trained or what kind of life she had, but when she responds strangely to certain situations, we consider some previous trauma, training or reaction and deal with her gently.

Shanthi was orphaned shortly after birth and missed out on some of the basic lessons that mothers impart to their young. She was raised by humans and although very precocious, Shanthi is slightly spoiled. She rebels at hard work but loves to show off with cute behavior.

Each of the Asian elephants has a different learning rate and can do "special" things the other cannot do or will not attempt. But they both need equal attention from the keepers or jealousy will develop, resulting in a sulky attitude or an attempt to solicit attention, even negative attention.

Shanthi needs more play, exercise and mental stimulation than Ambika, who performs her daily routines mainly to please her keepers. Shanthi's favorite plaything is a tire that we call her "Teddy tire"—as in "Teddy bear." She rolls the tire, carries it, stands it up and even sleeps with it.

Both Asian elephants enjoy swimming and will take a dip every day in the summer. They bob for apples thrown by the keepers and dunk each other in the spray of water as we fill their pool. When they get excited, they will race in and out of the water, pushing, kicking and emitting excited squeaks. After their swim,

they enjoy a free-for-all dirt toss.

But all play and no work makes zoo elephants hard to control. Our elephant program was recently broadened with the aid of a training consultant from the Baton Rouge Zoo. The new, more varied and extensive demonstration encourages Shanthi and Ambika to move faster, use their muscles a little more and show off their own special talents.

Keepers learned a lot too—especially ways to use voice and

body language more than the hook to maneuver the elephants, and how to use praise and discipline.

We now have a daily elephant training demonstration at 2 p.m. narrated by FONZ volunteers. The demonstrations are enjoyed by our elephants as well as the public, volunteers and keepers. It's hard work, and at times frustrating when things get difficult. But there isn't a more rewarding profession than that of being the leader of an elephant group! □

New Arrival

A high-pitched bellow shattered the din of clattering school children and echoed through the Elephant House. Jayathu stretched her trunk and reached for her feeding bottle.

Jayathu, whose name means "we will be victorious," is a 19-month-old Asian elephant, a gift from Sri Lanka to the United States. She is the newest resident of the National Zoo's Elephant House.

Jayathu was found in an abandoned well in June 1983 after farmers had used firecrackers to frighten her herd away from crops. She was taken to an elephant orphanage at the Sri Lankan National Zoological Gardens and hand-raised with about 15 other young elephants.

She was chosen as an envoy to the United States because of her appealing temperament. Those who work with her describe the pint-size pachyderm as a "good girl," "spunky," "friendly" and as having a "great attitude."

For her presentation ceremony June 18 on the White House lawn, she wore a Sri Lankan ceremonial garment called a "pari-hari." It covered

her from toes to trunk in bright red material embroidered with mirrors. During her official debut, President Reagan reached out his hand and she wrapped her small trunk around it as if to "shake hands."

Jayathu is 310 pounds of grey ears and spikey hair. At 34 inches tall, she is small for her age, but elephant keeper Kathy Wallace says bottle-fed elephants are typically half the size of their wild relatives. Hand-raised elephants usually make up for the size difference once they are weaned.

Jayathu eats some solid foods, such as orchard grass, timothy, sugar cane and mulberry leaves. But the mainstay of her diet is baby formula fortified with cereal, vitamins, minerals and lactase enzyme to help her digestion. She is fed five times a day at four hour intervals. At a recent "lunch," Jayathu enthralled visitors when she grasped her bottle with her trunk, rolled her eyes, lolled her long pink tongue and drooled. She finished her second bottle, rang out her usual bellow and sprayed elephant keeper "Curly" with formula. —Elizabeth Brett

We Built It Together!

Steve Frank

Photos by Jessie Cohen, NZP Graphics and Exhibits

What can you build with two tractor-trailer loads of lumber, 750 cheerful volunteers, plenty of hard work and lots of fun? Panda yard furniture!

In a tremendous outburst of spirit and love for the Zoo's star attractions, volunteers poured into the panda yard from as far away as Florida to work some 7,000 hours between May 10 and 13. Skilled and unskilled, young and old, FONZ's version of an old-fashioned barn-raising brought us together in the greatest single demonstration of volunteer support the Zoo has ever seen.

The four-day workforce included about 500 FONZ members, numerous outside volunteers and Zoo personnel on "busmen's holidays." Many individuals and companies donated money, tools, lumber, equipment, transportation and food to help make the effort a resounding success.

The Zoo got the idea for the panda furniture about a year ago and asked FONZ to coordinate the effort with Robert Leathers, an architect who specializes in designing and constructing community and playground equipment exclusively with volunteer work and contributions.

The panda furniture is the first equipment Leathers has designed for animals. Because the project is unique, many hours were spent

developing plans and designs. The structure's main purpose was simple enough—to stimulate natural panda behavior and exercise. But there were other important considerations as well—safety for the pandas, aesthetics, sight lines for viewers and longevity and durability of the equipment. The pandas' weight, renowned strength and especially their tendency to get their claws caught or tug at any small opening were key considerations in the final design and the many on-site modifications.

Initial planning began in 1983, when Leathers observed the pandas and began meeting with keepers, researchers, exhibit specialists, veterinarians and other Zoo staff. During these meetings, Leathers would modify his design to adapt to the special needs of pandas and a Zoo setting.

Modifications continued during construction, when Zoo staff and volunteers occasionally noticed potential problems that had been overlooked. "When we would mention something that concerned us," said project coordinator Maggie Morton, "Bob never got angry or pointed out that we had had six months to make changes. He would simply suggest different ways of solving the problem; he was incredibly flexible and creative."

Even the lumber was uniquely suited to the pandas' needs. Leathers specified select structural Douglas fir for its strength and

fine-grained density for claw-resistance and durability. The logs also had to be chemical-free, unpressurized, and 8"×8"—all unusual specifications.

"Several lumber companies told us they knew of no wood available that could meet all our specifications," said Morton. "But the American Forest Products Association offered to see if one of its members could help us. A few days later, Weyerhaeuser Corporation offered to donate the lumber we needed."

Weyerhaeuser's mill in Longview, Wash., made the panda furniture its special project. Logs were hand-picked, carefully cut and the best 150 pieces chosen. Each piece, which weighed close to 500 pounds by the estimate of those groups of three to four of us who carried them, was an immediate hit with Leathers.

Consolidated Freightways, on a request from the American Trucking Association, transported the lumber from Washington State to the Zoo, in time for the first shift of workers.

At the start of each shift, volunteers entered the closed-off area outside the panda yards, under the watchful eyes of the giraffes. We were checked in by volunteers at the registration desk and given official buttons with our first names written on them. Then we were designated as skilled or unskilled—a discrimination based on the ability to cut a straight line

Steve Frank has been a FONZ member for 16 years.



Children scraped, filed, sanded and put in giant lag screws.



Workers who carried the logs estimated they weighed about 500 pounds each.



Tace, an artist with a chain saw, carved Ling's "movable tree."



FONZ volunteers Catherine Baffert and Alex Singer pour concrete to set a tree while another crew carries a log into Ling-Ling's yard.

Thanks to All . . .

To everyone involved in the Panda Furniture Project—thanks, and let's do it again. It was a good show.

Any qualms I felt over the idea of volunteers performing complicated construction were laid to rest when I saw the quality of the planning, coordination, logistical support and most of all the hundreds of FONZ volunteers who donated their time and tools and were only too happy to roll up their sleeves and get their hands dirty.

As a working carpenter, I was amazed at the ability of large numbers of skilled and unskilled FONZ members to work smoothly and safely.

The background preparation was great: The logs and lumber

were there, the tools and hardware were there, and food was there. The NZP people were most attentive and covered any minor glitches.

Sunday night, after the last shift ended, Hsing was let out for a gander at his new jungle gym while assorted workers lounged at the rail—wary, hoping for the best but fearing the worst—benign neglect.

Hsing walked out for a spin in the moonlight only to be met by hundreds of board feet of lumber in his heretofore sacrosanct yard. He wandered around the structure, sniffed the tire swing, inspected the dry pond and settled down by the fence for a chew of bamboo.

The watchers groaned. Hsing ignored it all.

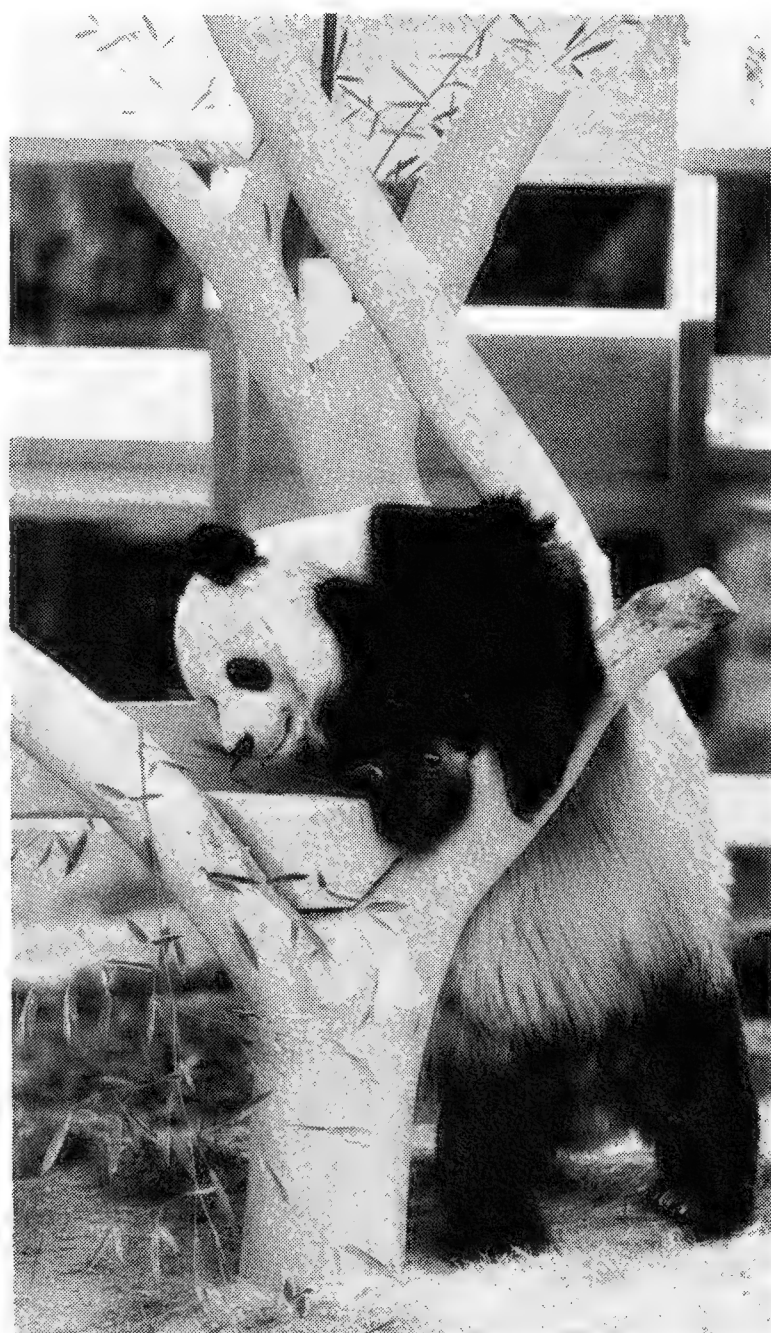
As I gathered up my tools, the keeper rattled the cage to call Hsing inside. Perversely, the panda ignored the call, slowly waddled to a timber, step by step mounted a platform, then crawled through the tunnel and sprawled on the far deck with a leisurely paw dangling over one end.

The watchers sighed in unison. Hsing liked it!

When I left, he seemed to be asleep. As far as I'm concerned, he can sleep there to his heart's content.

—George F. Arner

Thank you to all the volunteers and special thanks to coordinators and foremen: George Arner, Suzy Atwood, Nell Ball, Lee Maassen, Jim Mathews, Dennis McLaughlin, Pat Milone, Glenda Mobley, Belinda Reser, Alice Richey, Marcus Sandleman and Susan Trencher.



with a circular saw.

After registration, each volunteer was led to one of the busy areas where work was being supervised by Leathers, his chief assistant Barry Segal, the five volunteer foremen or the functional directors. Key personnel at all site areas were distinguishable by their yellow T-shirts emblazoned with a picture of play equipment and the energizing motto, "We built it together!"

Up to 300 people at a time were working in three-person crews, each crew assigned to a specific task. People were scraping bark from trees, digging holes, moving cement, cutting wood into strange shapes, hammering nails, tightening bolts, pulling up ivy, planting flowers, painting, creosoting, serving food, providing child care and filing and fine-sanding virtually everything.

There were extremely talented volunteers like Tace, an artist with a chain saw who carved branches for Ling-Ling's "movable tree." The tree is mounted on coils to simulate real tree action. There were children who scraped and filed trees, put in giant lag screws and spent hours sanding.

A Zoo safety inspector was on hand at every shift. Attesting to either the volunteers' skills or the success of the safety team, the first aid medic reported no major injuries. The most prevalent first aid needed was administering to the ubiquitous blisters.

The work stimulated considerable media interest. Television crews filmed us; radio and newspaper reporters interviewed us; *World Magazine* photographed the younger volunteers at work. FONZ documented the four-day event with slides for a presentation to zoos and other interested groups.

Amidst the beehive of activity, there was an electricity, a sense of

In our minds there were no unimportant jobs. Many volunteers stayed past their shifts and came back on days they weren't assigned to work.

purpose. Everyone was working hard at what was assigned. In our minds there were no unimportant jobs. Many volunteers stayed past their shifts and came back on days they weren't assigned to work. We worked with the right tools and the wrong tools. We borrowed equipment, jury-rigged and did what was necessary with the materials at hand.

On Saturday morning, a drenching rain began. Concerned that the downpour would delay the project's completion, Morton arrived at the construction area and what she saw brought tears to her eyes. Rather than stopping work, the group simply built plastic canopies and continued undaunted, unabated and uncomplaining.

Volunteer dedication was the

key to the project's success. There was Julie who quietly and tediously spent all day with me on the inglorious task of putting lag screws into all the platform planks, to secure them from pandas and earthquakes. The next day she was back and smiling because she was building a feeding station for Ling.

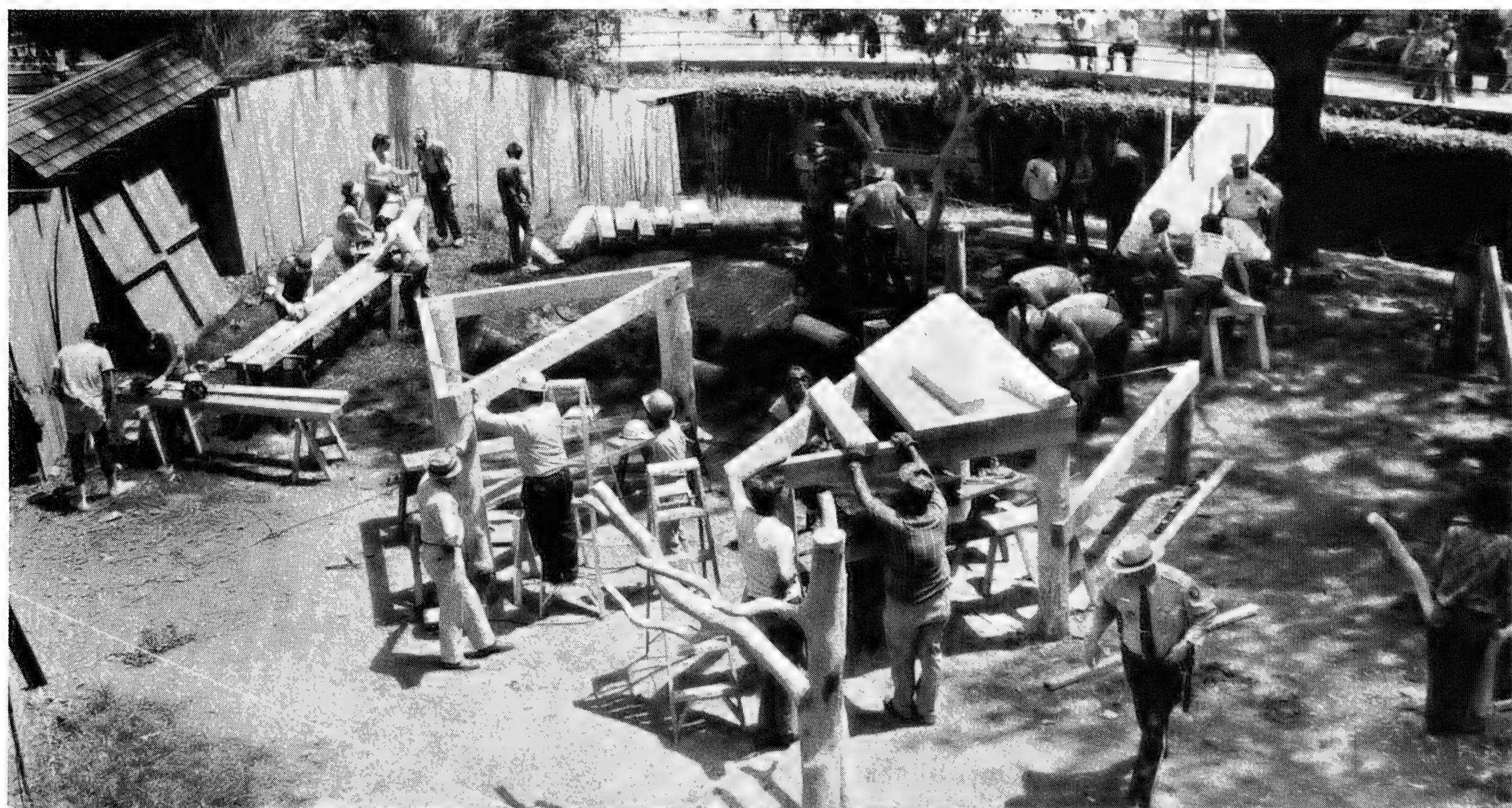
There was another Julie and her daughter Hillary who wanted a job to do together. They were assigned to dig a hole and spent an entire morning at it. Just as they finished and were ready to leave, Leathers examined it and said, "Good hole." A tree was inserted and Hillary beamed.

There was the crew of six who unceremoniously plugged away all morning digging a hole in hard ground while all around the dig-

ging was much easier.

And there was George, a professional carpenter who spent all four days as head of a work crew, much of it laboring on the tunnel in Hsing's yard. After the project was completed and Hsing was permitted to explore the yard, his walk through the tunnel was George's reward.

Mike Connery, the panda keeper who kept a watchful eye over the activities during the entire construction, expected Hsing to take to his new world more quickly than Ling because he is more active and adventuresome, as well as gentler. Mike's expectations proved right. Hsing began exploring the new equipment soon after he entered his rebuilt yard. A week later, Ling became accustomed to the new



The structure, best described as a panda jungle gym, contains many activity stations, with ramps and ridges for climbing, platforms naturally nestled in the trees for resting, a tunnel, swings and feeding spots stocked daily with panda delights.

challenges as well.

We hope Mike will also be right in his prediction that Ling is again pregnant and there may soon be three pandas using the new equipment.

As we left the construction area, we signed a poster that will be on display in the Panda House and then sent to Weyerhaeuser's Longview Mill. Many people left only after volunteering for the next project and giving specific schedules of their availability in the near future. We all left knowing we had fun, did a good job, provided a better lifestyle for our pandas and—we built it together! □

Right: Ling-Ling lolls on her exercise furniture. It took her about a week to try out the new structure, but now she uses it often. Below: Hsing-Hsing (left) explores the furniture in Ling's yard. White "cups" are built into the platform corners to hold stalks of bamboo.



FONZ NEWS

CALL FOR NOMINATIONS

In accord with Article II of our bylaws, the FONZ Board of Directors is hereby soliciting nominations from the membership.

Board Responsibilities

As members of a "working" Board, FONZ Directors "administer and manage" the affairs of the Friends of the National Zoo. The Board of Directors establishes the policies of the Corporation, approves budgets and expenditure of funds and otherwise directs and supervises the activities of FONZ officers and employees. Much of the Board's work is accomplished through active committees that develop programs, budgets and policies for the various FONZ activities and oversee their implementation. The principal committees include:

The *Administration Committee*, which establishes and supervises administrative policies and procedures for FONZ employees.

The *Education Committee*, which participates in the development of FONZ-supported educational programs and supervises all educational activities and National Zoo research grants authorized by the Board.

The *Finance Committee*, which institutes, develops and supervises the fiscal operations of the Corporation.

The *Front Royal Committee*, which coordinates FONZ support programs at the Zoo's Conservation and Research Center at Front Royal, Virginia.

The *Membership Committee*, which is responsible for recruiting new members to FONZ and for developing membership activities.

The *Publications Committee*, which supervises the publication and distribution of *Zoogoer* and *PawPrints*.

The *Visitor Services Committee*, which oversees the management and operation of the FONZ gift shop, food, parking and other visitor service facilities at the Zoo.

All Board members serve on at least one of these committees, and many attend two or more FONZ meetings each month. Board members serve on a voluntary basis without pay.

Criteria for Selection of Directors

The criteria by which potential candidates are judged for nomination to the Board of Directors are: the candidate's strong interest in supporting zoological education, research and conservation in accordance with the purposes of our Corporation; leadership; experience or skills that are needed and would directly benefit the management and operations of FONZ; and willingness and time to participate fully in FONZ work and activities. As a strong working

Board, Directors are expected to attend a total of 15 to 20 full Board meetings, committee meetings and special events a year, usually scheduled on weekdays from noon to 2 p.m. Candidates must be dues-paying members of FONZ.

Nomination Procedures

Nominations may be made only by dues-paying family, couple or individual memberships in good standing. (Senior citizen, contributing and patron memberships of FONZ and members who previously joined the Corporation as life members are entitled to all rights and privileges of dues-paying family, couple or individual members as appropriate.) Employees of FONZ or the National Zoo are not eligible for membership on the FONZ Board of Directors. All nominations must be submitted on an official FONZ nomination form with a biographical sketch of the nominee attached. Nomination forms can be obtained at the FONZ office or will be mailed upon request.

For information and/or the required forms, call 673-4950.

The deadline for submitting nomination forms and accompanying biographical sketches is August 25, 1984.

Address submissions to: Capt. Victor Delano, Chairperson, FONZ Nominating Committee, National Zoological Park, Washington, D.C. 20008.

ZOOFARI GALA

Everyone was a winner at FONZ's first National ZooFari on May 17. Some 500 guests enjoyed an evening of animal demonstrations, exotic African tribal dancers and drummers, gourmet dinner and dancing next to the elephants.

Wild Kingdom's Marlin Perkins appropriately won the award for wearing the wildest safari jacket while FONZ member Joan Manton won the grand door prize—two

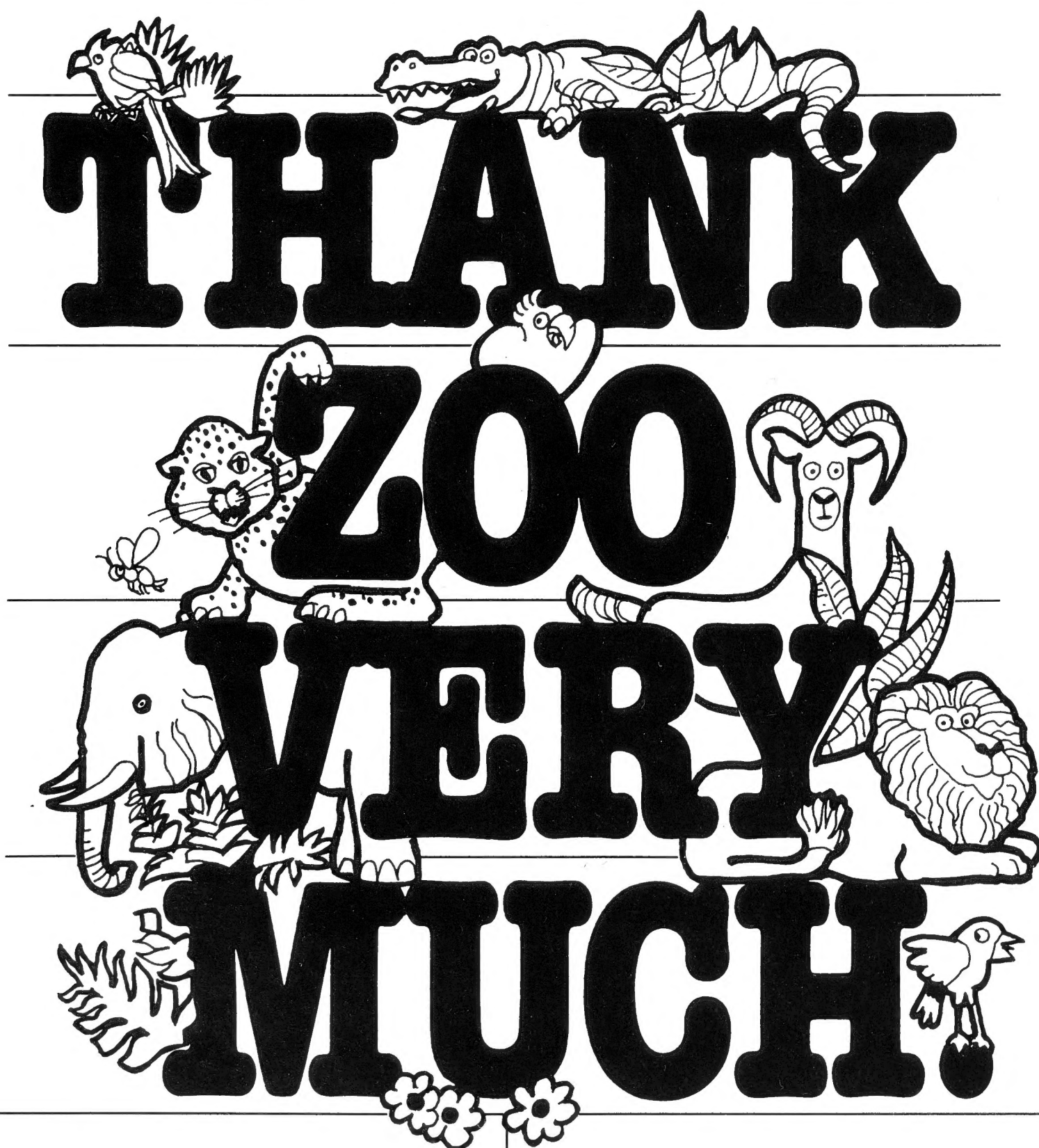
round trip, ultra-class World Airways tickets to anywhere on their routes.

Most important, the real winners are endangered and rare animals, since proceeds from the safari-themed gala launched the Theodore H. Reed Animal Acquisition Fund honoring the long-time (1958-83) Zoo Director.

The evening was such fun that *Washingtonian* magazine devoted an entire page in their July issue just to say "Thank Zoo Very Much."

If you missed the National Zoo-

Fari this year, call FONZ at 673-4950 so we make sure you receive a special invitation for next year. You'll be a winner—and so will all the animals!



Thanks to all our Friends of the National Zoo for their support and attendance at the 1st Annual National ZooFari. The elephants are elated, the apes have gone ape, the pandas are in a state of panda-monium. And the people are pleased pink.

You've helped the Theodore H. Reed Animal Acquisition Fund off to a magnificent start. But it's just a beginning. We'll look for you next year at the 2nd Annual National ZooFari.

And in the meantime, if you'd care to help the fund grow, send your tax-deductible donation to the . . .

Theodore H. Reed
Animal Acquisition Fund
FRIENDS OF THE NATIONAL ZOO
National Zoological Park
Washington, D.C. 20008

**Friends
of the
National** 



Perkins and Reed



Prize-winner Manton

What's New at the Zoo?



Francie Schroeder

Smokey's Honey Tree

In July, Smokey Bear began trying out an ingenious "honey tree" in his yard. His tree trickles liquids down its trunk and dispenses solid foods, such as berries and cookies, from the upper area of the trunk.

The food is dispensed randomly so Smokey cannot anticipate when he will be receiving a treat or what it will be. The random dispensation stimulates natural activity by encouraging Smokey to explore the tree and hunt for food.

The 16-foot tree is natural looking as well as durable. Constructed of steel-reinforced cement, it is modeled after a similar tree in the Bronx Zoo. The cement is shaped and painted to resemble a worn beech tree.

Panels in front of the exhibit explain the tree's function and Smokey's history. The panels and tree were financed by a grant from the U.S. Forest Service.

Dr. Reed Retires

Dr. Theodore Reed, longtime (1958-1983) Director of the National Zoo and the Zoo's Senior Advisor for the past year, retired July 3. Reed will be sorely missed by all—especially FONZ. A speech he made on the plight of the Zoo to a citizen's group in 1958 triggered the founding of FONZ.

Dr. Reed will not be idle during his retirement; he is writing his memoirs.

Film Series

Three feature-length films—"Panda," "Zoo" and "Last Chance"—are interspersed with a variety of short subjects in daily continuous screenings at the Education Building Auditorium. The first film begins at 10:30 a.m. and the last at 4:30 p.m. Film schedules are posted at the information kiosk in front of the Auditorium.

Animal Update

- A Dama gazelle was born June 14 in the Hoofed Stock Area.
- The Zoo's first tayra, acquired in June, is at the North American Mammals Exhibit.
- A Barbary macaque was born May 27 on Monkey Island.
- Two sea lion pups—a male born in April and a female born in May—are in the Sea Lion Exhibit.
- A female ostrich arrived April 30 on extended loan from the Baltimore Zoo. She can be seen behind the Bird House.
- Several new animals are on exhibit in the Small Mammal House—a black-tailed marmoset born May 31, three dwarf mongooses born May 14 and three acouchis born in April. The baby rat kangaroo is out of the pouch and the young sloth, born last January, is now on exhibit.
- A wattled curassow was introduced into the Flight Cage in May.



Jessie Cohen, NZP Graphics and Exhibits

California sea lion mother and pup.

The National Zoo's newest elephant was officially presented to the United States by Sri Lanka at a White House ceremony June 18 (p.15).



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National Zoological Park
Washington, D.C. 20008
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